Artificial intelligence (AI) and machine learning (ML) are set to play a crucial role in the evolution of Canada’s financial sector. Yet, as financial institutions (FIs) move towards a smarter, more automated, and inter-connected delivery landscape, the challenges of increased reliance on AI are coming into focus.

**Intelligent automation spectrum**

Different types of intelligent automation have varying levels of model maturity and traceability, exposing them to different risk universes and required audit efforts.

- **Artificial intelligence** models are more advanced and less transparent. They are continuously learning with very little traceability and visibility into how decisions are being made.
- **Machine learning models** are more advanced with little traceability and visibility into how decisions are being made.
- **Natural language processing** is an area of computer science and artificial intelligence concerned with the interactions between computers and human (natural) languages.
- **RPA** processes automate simple “yes”/“no” decisions and are easily traceable.

**The future is open**

This summer, Doron Telem, KPMG Canada’s leader for Risk Consulting, hosted a panel with bankers and regulatory representatives at KPMG’s 2019 Banking Conference to discuss the rise of AI/ML and the related risks and opportunities.

As shown in the graphic above, the spectrum is wide and consists of ranges in complexity and risk levels. What follows are some of the interesting observations made by the panel.

**Balancing trust with innovation**

Earning and maintaining customer trust is challenging under normal conditions. Adding AI to the equation can introduce more complexity. Customers are becoming increasingly aware of both the sensitivity and value of their data and growing wise to ways organizations can leverage it to their advantage. More and more, they are aligning with financial partners who can use data to deliver more tailored, convenient, and enhanced financial offerings. By the same token, customers recognize the power of AI to introduce greater accuracy, efficiency, and impartiality to banking operations.

However, there are veiled issues and concerns around the use of customer data that need to be confronted as the financial sector ramps up its use of AI technologies. The good news is that these challenges are receiving attention within both...
private and public sector boardrooms. During KPMG’s Banking Conference panel discussion, it was revealed that both banks and regulators are putting thought, effort, research, and action around the governance of AI. And, for its part, KPMG is continuing to evolve its own methodology, “AI in Control.”¹

There are several key elements of AI that require consideration (listed below), many of which were tackled by the panel during its discussion.

### Key challenges for AI

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<th>Challenge</th>
<th>Description</th>
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<td><strong>Fairness</strong></td>
<td>Biased data could lead to decisions being made based on discriminatory algorithms</td>
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<tr>
<td><strong>Transparency</strong></td>
<td>More advanced machine learning models tend to be ‘black-box’ algorithms that make it hard to determine the logic behind a decision that was made</td>
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<td><strong>Explainability</strong></td>
<td>Due to the lack of transparency, it could be hard to explain decisions made by machine learning algorithms to the customer (e.g. customers to have the right to know why they are denied credit)</td>
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<td><strong>Legal and reputational risk</strong></td>
<td>Use of alternative data from non-traditional sources could give rise to data governance and data privacy concerns leading to unintended discrimination and ethical consequences</td>
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<tr>
<td><strong>Operational risk</strong></td>
<td>Poor implementation of automated processes (e.g. automated trading bots) could be a significant source of operational risk</td>
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*Source: The future is open: KPMG’s 2019 Banking Conference*

### Ensuring fairness, earning loyalty

Fairness in banking can be a sensitive and subjective topic. It’s a balancing act between protecting a bank’s best interests and ensuring customer-related decisions are made with the right information and free of improper/unethical biases. AI/ML can help in this regard, but requires oversight to ensure recommendations generated by them are justifiable, that biases are being tested and dealt with accordingly, and that outcomes are reasonable for customers and the bank.

For example, whilst it is considered fair to discriminate on the basis of financial ability, earnings, and overall wealth, FIs do not wish to discriminate based on age, sex, or religious affiliation. It’s arguable, then, that these latter parameters should be removed from data used to train the ML models. That being said, such removal may not actually eliminate the potential bias since other parameters which are closely related to these may, in fact, introduce the same bias; and without the information in the database, it may not be possible to identify the bias without physically polling results. Hence, the complexity and strong need for highly experienced professionals to assist and guide through the process.

Ultimately, FIs must be as transparent as possible in their use of AI. That means understanding where the use of AI can complement or even replace human decision-making, ensuring customers understand how their information is being collected and used, and avoiding the breach of both implicit and explicit promises around the use of sensitive information.

### The regulatory lens

AI/ML models have unique features that are not entirely covered in existing regulations, such as their dynamic nature and use of varied data sources. While FIs and regulators wish for AI/ML models to be fully interpretable and explainable to customers, by nature, AI models rely on complex algorithms, a multitude of data sets (structured and unstructured) and iterative calculations, making such objectives very difficult. Indeed, some also argue that there should be a distinction between models used for internal purposes such as marketing and branding decisions versus those impacting clients such as credit determinations.

The potential for increased use of AI/ML by FIs for internal risk measurement processes as well as external decision making is expected to require revisiting of existing regulations. For example, we might expect OSFI’s E-23 Guideline from 2017 and the US OCC’s SR 11-7 guidance from back in 2011 to be updated so as to better address AI or ML models. There is also a related question as to whether these guidelines will ever aim to govern all types of models used by banking institutions or just those more specific to risk management activities.

As an example, chat bots leveraging NLP (Natural Language Processing) and other business applications relying on neural net models may not be governed by such regulations. KPMG’s panel discussion clearly revealed that regardless of the extent to which regulators expand the reach of their guidance, FIs recognize the importance of appropriate risk management to their own operations and reputation.

### Seizing the opportunity

Although there are inherent risks in bringing AI/ML into the banking world, we cannot lose sight of the advantages. The use of sophisticated, ever-learning models can help banks identify fraud more quickly, prevent money laundering transactions, predict company insolvency, and hire and retain top talent. Supervisory authorities may also leverage AI and ML models to monitor similar matters.

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¹ Source: KPMG Artificial Intelligence in Control


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Some of the key points raised in the panel and among FIs as they seek to unlock the benefits of AI while keeping it ‘in control.’

Even still, the most significant opportunity posed by AI is the culture-shift it may spark among some FIs. While it is no secret that FIs are becoming more and more data and technology-driven organizations, AI/ML will lead to a profound change in making this transformation complete. With AI, FIs can now use advanced data-driven insights with their core customer-centric knowledge and experience and leverage their digital channels to present and sell enhanced solutions to customers. To do this, the business lines at FIs will need to be collaborative, agile, and innovative. Key to this will be appropriate training, up-skilling and recruitment of specialized talent. With AI, FIs are already able to expand their portfolio of offerings to their clients, as we are seeing in the wealth management space for example.

The human factor
Ethics will remain a key consideration throughout the increased use of AI. As such, the industry would do well to avoid using AI as an excuse to absolve itself of the responsibility to act ethically. As depicted below, at KPMG, we recommend three crucial steps when dealing with AI – defining the ethical boundaries, building an appropriate governance structure, and then upholding it by maintaining a proper inventory of applications.

Naturally, there may be some debate on the specific boundaries of ethical behavior. FIs should be transparent in their approach and share it with clients, vendors, and regulators. An open and honest discourse will allow all to make informed decisions on who they trust to handle and use their information.

Learn more about the implications of artificial intelligence in finance, and how KPMG can help you gain control of AI.

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Sources:
Controlling AI: The imperative for transparency and explainability, KPMG, June 2019
https://advisory.kpmg.us/articles/2019/controlling-ai.html

AI | Compliance in control: Financial services regulatory challenges, KPMG, 2019